

II. CLAIM AMENDMENTS

1. (Currently Amended) A stretchable interconnect for electrically connecting electronic devices which are supported for movement relative to one another, comprising:

a photolithographically patterned stretchable conductor extending between two of said devices for electrically coupling a contact of one device to a contact of another device, said conductor being comprised of a conductive material,

wherein said interconnect comprises a coiled conductor which as patterned has a stress gradient extending through at least a portion of the thickness of said conductor, and

wherein as photolithographically patterned and prior to coiling said interconnect comprises at least one "V" shaped section, which when unsupported forms said coil.

2 - 3 (Cancelled)

4. (Currently Amended) The stretchable interconnect as in claim 1,3 wherein said interconnect comprises a plurality of "V" shaped sections.

5. (Cancelled)

6. (Currently Amended) The stretchable interconnect as in claim 1,⁵ wherein said interconnect comprises a plurality of "V" shaped sections, which when unsupported forms said coil.

7. (Currently Amended) The stretchable interconnect as in claim 1,² wherein said coiled conductor is di-helic having two winding directions.

8. (Currently Amended) A sensor array comprising at least two electronic devices which are supported for movement relative to one another and at least one stretchable interconnect for connecting said electronic devices, said interconnect comprising: a photolithographically patterned stretchable conductor extending between said devices for electrically coupling a contact of one device to a contact of another device, said conductor being formed of a conductive material,

wherein said interconnect comprises a coiled conductor which as patterned has a stress gradient extending through at least a portion of the thickness of said conductor, and

wherein as photolithographically patterned and prior to coiling said interconnect comprises at least one "V" shaped section which when unsupported, forms said coil.

9 - 10 (Cancelled)

11. (Currently Amended) The sensor array as in claim 8,10 wherein said interconnect comprises a plurality of "V" shaped sections.

12. (Cancelled)

13. (Currently Amended) The sensor array as in claim 8,12 wherein said interconnect comprises a plurality of "V" shaped sections, which when unsupported form said coil.

14. (Currently Amended) The sensor array as in claim 8,9 wherein said coiled conductor is di-helic having two winding directions.

15. (Currently Amended) The sensor array as in claim 8,9 which comprises a tactile sensing array.

16. (Original) The sensor array as in claim 15 which comprises a tactile sensing portion of a robot.

17. (Original) The sensor array as in claim 16 wherein said sensor array is arranged in a flexible and stretchable skin of said robot.

18. (Currently Amended) The sensor array as in claim 8,9 which includes a plurality of said stretchable interconnects.

19 - 30 (Cancelled)

31. (New) A stretchable interconnect for electrically connecting electronic devices which are supported for movement relative to one another, comprising:

a patterned stretchable conductor extending between two of said devices for electrically coupling a contact of one device to a contact of another device, said conductor being comprised of a conductive material,

wherein said interconnect comprises a coiled conductor which as patterned has a stress gradient extending through at least a portion of the thickness of said conductor, and

wherein as patterned and prior to coiling said interconnect comprises at least one section shaped to reduce stress concentration, which when unsupported forms said coil.

32. (New) The stretchable interconnect as in claim 31, wherein said interconnect comprises a plurality of said shaped sections.

33. (New) The stretchable interconnect as in claim 31, wherein said interconnect comprises a plurality of said shaped sections, which when unsupported forms said coil.

34. (New) The stretchable interconnect as in claim 31, wherein said coiled conductor is di-helic having two winding directions.

35. (New) A sensor array comprising at least two electronic devices which are supported for movement relative to one another and at least one stretchable interconnect for connecting said electronic devices, said interconnect comprising: a patterned stretchable conductor extending between said devices for electrically coupling a contact of one device to a contact of another device, said conductor being formed of a conductive material,

wherein said interconnect comprises a coiled conductor which as patterned has a stress gradient extending through at least a portion of the thickness of said conductor, and

wherein as patterned and prior to coiling said interconnect comprises at least one section shaped to reduce stress concentration, which when unsupported forms said coil.

36. (New) The sensor array as in claim 35, wherein said interconnect comprises a plurality of said shaped sections.

37. (New) The sensor array as in claim 35, wherein said interconnect comprises a plurality of said shaped sections, which when unsupported form said coil.

38. (New) The sensor array as in claim 35, wherein said coiled conductor is di-helic having two winding directions.

39. (New) The sensor array as in claim 35, which comprises a tactile sensing array.

40. (New) The sensor array as in claim 39, which comprises a tactile sensing portion of a robot.

41. (New) The sensor array as in claim 40 wherein said sensor array is arranged in a flexible and stretchable skin of said robot.

42. (New) The sensor array as in claim 35, which includes a plurality of said stretchable interconnects.